

2.13 Air Quality

2.13.1 Regulatory Setting

The Federal Clean Air Act (FCAA) as amended in 1990 is the federal law that governs air quality. The California Clean Air Act of 1988 is its companion state law. These laws, and related regulations by the U.S. Environmental Protection Agency (U.S. EPA) and California Air Resources Board (ARB), set standards for the quantity of pollutants that can be in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and State ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns. The criteria pollutants are: carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), particulate matter (PM, broken down for regulatory purposes into particles of 10 micrometers or smaller – PM₁₀ and particles of 2.5 micrometers and smaller - PM_{2.5}), lead (Pb), and sulfur dioxide (SO₂). In addition, State standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H₂S), and vinyl chloride. The NAAQS and State standards are set at a level that protects public health with a margin of safety, and are subject to periodic review and revision. Both State and Federal regulatory schemes also cover toxic air contaminants (air toxics). Some criteria pollutants are also air toxics or may include certain air toxics within their general definition.

Federal and State air quality standards and regulations provide the basic scheme for project-level air quality analysis under NEPA and CEQA. In addition to this type of environmental analysis, a parallel “Conformity” requirement under the FCAA also applies.

FCAA Section 176(c) prohibits the U.S. Department of Transportation and other federal agencies from funding, authorizing, or approving plans, programs, or projects that are not first found to conform to State Implementation Plan (SIP) for achieving the goals of the Clean Air Act requirements related to the NAAQS. “Transportation Conformity” Act takes place on two levels: the regional level, or planning and programming level, and the project level. The proposed project must conform at both levels to be approved. Conformity requirements apply only in nonattainment and “maintenance” (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. U.S. EPA regulations at 40 CFR 93 govern the conformity process.

Regional level conformity in California is concerned with how well the region al transportation system supports plans for attaining the standards set for carbon monoxide (CO), nitrogen dioxide (NO₂), ozone (O₃), and particulate matter (PM₁₀ and PM_{2.5}), and in some areas sulfur dioxide (SO₂). California has nonattainment or maintenance areas

for all of these transportation-related “criteria pollutants” except SO₂, and also has a nonattainment area for lead. However, lead is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on Regional Transportation Plans (RTPs) and Federal Transportation Improvement Programs (FTIPs) that include all of the transportation projects planned for a region over a period of at least 20 years for the RTP, and 4 years for the FTIP. RTP and FTIP conformity is based on use of travel demand and air quality models to determine whether or not the implementation of those projects would conform to emission budgets or other tests showing that requirements of the Clean Air Act and the SIP are met. If the conformity analysis is successful, the Metropolitan Planning Organization (MPO) and Federal Highway Administration (FHWA), and Federal Transit Administration (FTA) make determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the Clean Air Act. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept, scope, and open to traffic schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project is deemed to meet regional conformity requirements for purposes of project-level analysis.

Conformity at the project-level also requires “hot spot” analysis if an area is “nonattainment” or “maintenance” for carbon monoxide (CO) and/or particulate matter (PM₁₀ or PM_{2.5}). A region is “nonattainment” if one or more of the monitoring stations measures violation of the relevant standard, and U.S. EPA officially designates the area nonattainment. Areas that were previously designated as nonattainment areas but subsequently meet the standard may be officially redesignated to attainment by the U.S. EPA, and are then called “maintenance” areas. “Hot spot” analysis is essentially the same, for technical purposes, as CO or particulate matter analysis performed for NEPA purposes. Conformity does include some specific procedural and documentation standards for projects that require a hot spot analysis. In general, projects must not cause the “hot spot”-related standard to be violated, and must not cause any increase in the number and severity of violations in nonattainment areas. If a known CO or particulate matter violation is located in the project vicinity, the project must include measures to reduce or eliminate the existing violation(s) as well.

2.13.2 Affected Environment

An Air Quality Assessment (May 2010) was prepared as part of the proposed project to assess the impacts of the project on air quality locally and regionally. The information presented in this section is based on the results of the technical study.

2.13.2.1 Environmental Setting

The proposed project is located within the South Coast Air Basin (SCAB), a 6,600-square-mile area bounded by the Pacific Ocean to the west and the San Gabriel, San Bernardino, and San Jacinto Mountains to the north and east. Air quality regulation in the SCAB is administered by the South Coast Air Quality Management District (SCAQMD). The SCAB includes Orange County and the nondesert parts of Los Angeles, Riverside, and San Bernardino Counties, in addition to the San Geronio Pass area of Riverside County. Its terrain and geographical location determine the distinctive climate of the SCAB, as it is a coastal plain with connecting broad valleys and low hills.

The SCAB is characterized as having a “Mediterranean” climate (a semiarid environment with mild winters, warm summers, and moderate rainfall). The general region lies in the semipermanent high-pressure zone of the eastern Pacific. As a result, the climate is mild and tempered by cool sea breezes. The climatological pattern is interrupted infrequently by periods of extremely hot weather, winter storms, or Santa Ana winds. The extent and severity of the air pollution problem in the SCAB is a function of the area’s natural physical characteristics (weather and topography), as well as man-made influences (development patterns and lifestyle). Factors such as wind, sunlight, temperature, humidity, rainfall, and topography all affect the accumulation and/or dispersion of pollutants throughout the SCAB.

2.13.2.2 Climate

The average annual temperature varies little throughout the SCAB, averaging approximately 75 degrees Fahrenheit (°F). However, with a less pronounced oceanic influence, the eastern inland portions of the SCAB show greater variability in annual minimum and maximum temperatures. All portions of the SCAB have had recorded temperatures over 100°F in recent years. January is usually the coldest month at all locations, while July and August are usually the hottest months of the year. Although the SCAB has a semi-arid climate, the air near the surface is moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the SCAB by off-shore winds, the ocean effect is dominant. Periods with heavy fog are frequent; low stratus clouds, occasionally referred to as “high fog,” are a characteristic climate feature. Annual average relative humidity is 70 percent at the coast and 57 percent in the eastern part of the SCAB. Precipitation in the SCAB is typically nine to 14 inches annually and is rarely in the form of snow or hail due to typically warm weather. The frequency and amount of rainfall is greater in the coastal areas of the SCAB.

Within the project vicinity, the Cities of San Juan Capistrano, Dana Point, and San Clemente experience fairly mild weather, with temperatures typically ranging from 40°F in the winter to 79°F in the summer. On average, the warmest months are August and September, with a mean temperature of approximately 79°F. The coolest months are December and January, with a mean average of 44°F. The project vicinity experiences the greatest amount of precipitation in the month of February.

The area in which the proposed Interstate 5 (I-5) High-Occupancy Vehicle (HOV) Lane Extension Project is located offers clear skies and sunshine; however, it is still susceptible to air inversions. This traps a layer of stagnant air near the ground, where it is further loaded with pollutants. These inversions cause haziness, which is caused by moisture, suspended dust, and a variety of chemical aerosols emitted by trucks, automobiles, furnaces, and other sources.

2.13.2.3 Air Quality Management

Pursuant to the Clean Air Act, the U.S. Environmental Protection Agency (EPA) has established NAAQS for the following air pollutants: CO, O₃, NO₂, SO₂, particulate matter less than 10 and 2.5 microns in diameter (PM₁₀ and PM_{2.5}, respectively), and Pb. These pollutants are referred to as criteria pollutants because numerical criteria have been established for each pollutant, which define acceptable levels of exposure. The United States EPA has revised the NAAQS several times since their original implementation and will continue to do so as the health effects of exposure to air pollution are better understood.

The California Air Resources Board (CARB) administers air quality policy in California. States with air quality that did not achieve the NAAQS were required to develop and maintain State Implementation Plans (SIPs). These plans constitute a federally enforceable definition of the State's approach (or "plan") and schedule for the attainment of the NAAQS. Air quality management areas were designated as "attainment," "nonattainment," or "unclassified" for individual pollutants depending on whether or not they achieve the applicable NAAQS and California Ambient Air Quality Standards (CAAQS) for each pollutant. It is important to note that because the NAAQS and CAAQS differ in many cases, it is possible for an area to be designated attainment by the EPA (meets NAAQS) and nonattainment by CARB (does not meet CAAQS) for the same pollutant. The NAAQS and the CAAQS are summarized in Table 2.13-1.

The SCAB is an attainment area for CO, NO₂, and SO₂ for both State and federal standards. The SCAB is a nonattainment area for O₃, PM₁₀, and PM_{2.5} under both State and federal standards; refer to Table 2.13-1.

Sensitive populations are more susceptible to the effects of air pollution than the general population. Sensitive populations (sensitive receptors) that are in proximity to localized sources of toxics and CO are of particular concern. Land uses considered sensitive receptors include residences, motels/hotels, schools, playgrounds, childcare centers, athletic facilities, long-term health care facilities, rehabilitation centers, convalescent centers, and retirement homes. The total distance of the proposed project is approximately 5.4 miles (mi). Sensitive receptors located near the proposed project segment include residential uses, motels, hotels, schools, parks, and church uses. Within the City of San Juan Capistrano, the project site is immediately surrounded by commercial uses. However, within the City of Dana Point and the City of San Clemente, the project site is surrounded by mostly residential uses.

2.13.2.4 Air Quality Monitoring

The SCAQMD operates several air quality monitoring stations within the SCAB; refer to Table 2.13-2. The closest monitoring stations are located in the cities of Mission Viejo and Costa Mesa. Each monitoring station is located within a Source Receptor Area (SRA). The communities within an SRA are expected to have similar climatology and

Table 2.13-1 State and Federal Criteria Air Pollutant Standards, Effects, and Sources

<u>Pollutant</u>	<u>Averaging Time</u>	<u>State Standard⁹</u>	<u>Federal Standard⁹</u>	<u>Principal Health and Atmospheric Effects</u>	<u>Typical Sources</u>	<u>Attainment Status</u>
<u>Ozone (O₃)²</u>	<u>1 hour</u> <u>8 hours</u> <u>8 hours</u> <u>(conformity process⁵)</u>	<u>0.09 ppm</u> <u>0.070 ppm</u> ---	<u>---</u> ⁴ <u>0.075 ppm⁶</u> <u>0.08 ppm</u> <u>(4th highest in 3 years)</u>	<u>High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.</u>	<u>Low-altitude ozone is almost entirely formed from reactive organic gases/volatile organic compounds (ROG or VOC) and nitrogen oxides (NOx) in the presence of sunlight and heat. Major sources include motor vehicles and other mobile sources, solvent evaporation, and industrial and other combustion processes.</u>	<u>Federal: Extreme Nonattainment (8-hour)</u> <u>State: Nonattainment (1-hour and 8-hour)</u>
<u>Carbon Monoxide (CO)</u>	<u>1 hour</u> <u>8 hours</u> <u>8 hours</u> <u>(Lake Tahoe)</u>	<u>20 ppm</u> <u>9.0 ppm¹</u> <u>6 ppm</u>	<u>35 ppm</u> <u>9 ppm</u> ---	<u>CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical ozone.</u>	<u>Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.</u>	<u>Federal: Attainment/Maintenance</u> <u>State: Attainment</u>
<u>Respirable Particulate Matter (PM₁₀)²</u>	<u>24 hours</u> <u>Annual</u>	<u>50 µg/m³</u> <u>20 µg/m³</u>	<u>150 µg/m³</u> <u>---</u> ²	<u>Irritates eyes and respiratory tract. Decreases lung capacity.</u>	<u>Dust- and fume-producing industrial and agricultural operations; combustion</u>	<u>Federal: Serious Nonattainment</u>

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and Avoidance, Minimization, and/or Mitigation Measures

				Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many aerosol and solid compounds are part of PM ₁₀ .	smoke; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources (wind-blown dust, ocean spray).	State: Nonattainment
Fine Particulate Matter (PM _{2.5}) ²	24 hours Annual 24 hours (conformity process ³)	--- 12 µg/m ³ ---	35 µg/m ³ 15.0 µg/m ³ 65 µg/m ³ (4th highest in 3 years)	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the PM _{2.5} size range. Many aerosol and solid compounds are part of PM _{2.5} .	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical (including photochemical) reactions involving other pollutants including NO _x , sulfur oxides (SO _x), ammonia, and ROG.	Federal: Nonattainment State: Nonattainment
Nitrogen Dioxide (NO ₂)	1 hour Annual	0.18 ppm 0.030 ppm	0.100 ppm ⁷ (98th percentile over 3 years) 0.053 ppm	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain. Part of the "NO _x " group of ozone precursors.	Motor vehicles and other mobile sources; refineries; industrial operations.	Federal: Attainment/ Maintenance State: Attainment
Sulfur Dioxide (SO ₂)	1 hour 3 hours 24 hours Annual	0.25 ppm --- 0.04 ppm ---	0.075 ppm ⁸ (98th percentile over 3 years) 0.5 ppm 0.14 ppm 0.030 ppm	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Federal: Attainment/ Unclassified State: Attainment/ Unclassified
Lead (Pb) ³	Monthly Quarterly Rolling 3-month average	1.5 µg/m ³ --- ---	--- 1.5 µg/m ³ 0.15 µg/m ³	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from gasoline may exist in soils along major roads.	Federal: Nonattainment (LA County only) State: Nonattainment (LA County only)
Sulfate	24 hours	25 µg/m ³	---	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.	Federal: Attainment/ Unclassified State: Attainment/ Unclassified
Hydrogen Sulfide (H ₂ S)	1 hour	0.03 ppm	---	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea.	Industrial processes such as: refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources like volcanic areas and hot springs.	Federal: Attainment/ Unclassified State: Attainment/ Unclassified
Visibility Reducing Particles (VRP)	8 hours	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70%	---	Reduces visibility. Produces haze. NOTE: not related to the Regional Haze program under the Federal Clean Air Act, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas.	See particulate matter above.	Federal: Attainment/ Unclassified State: Attainment/ Unclassified
Vinyl Chloride ³	24 hours	0.01 ppm	---	Neurological effects, liver damage, cancer. Also considered a toxic air contaminant.	Industrial processes	Federal: Attainment/ Unclassified State:

Footnotes:

- ¹ Rounding to an integer value is not allowed for the State 8-hour CO standard. Violation occurs at or above 9.05 ppm. Violation of the Federal standard occurs at 9.5 ppm due to integer rounding.
- ² Annual PM₁₀ NAAQS revoked October 2006; was 50 µg/m³. 24-hr. PM_{2.5} NAAQS tightened October 2006; was 65 µg/m³. In 9/09 U.S. EPA began reconsidering the PM_{2.5} NAAQS; the 2006 action was partially vacated by a court decision.
- ³ The ARB has identified vinyl chloride and the particulate matter fraction of diesel exhaust as toxic air contaminants. Diesel exhaust particulate matter is part of PM₁₀ and, in larger proportion, PM_{2.5}. Both the ARB and U.S. EPA have identified lead and various organic compounds that are precursors to ozone and PM_{2.5} as toxic air contaminants. There are no exposure criteria for adverse health effect due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong. Lead NAAQS are not required to be considered in Transportation Conformity analysis.
- ⁴ Prior to 6/2005, the 1-hour NAAQS was 0.12 ppm. The 1-hour NAAQS is still used only in 8-hour ozone early action compact areas, of which there are none in California. However, emission budgets for 1-hour ozone may still be in use in some areas where 8-hour ozone emission budgets have not been developed.
- ⁵ The 65 µg/m³ PM_{2.5} (24-hr) NAAQS was not revoked when the 35 µg/m³ NAAQS was promulgated in 2006. Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for the newer NAAQS are found adequate or SIP amendments for the newer NAAQS are completed.
- ⁶ As of 9/16/09, U.S. EPA is reconsidering the 2008 8-hour ozone NAAQS (0.075 ppm); U.S. EPA is expected to tighten the primary NAAQS to somewhere in the range of 60-70 ppb and to add a secondary NAAQS. U.S. EPA plans to finalize reconsideration and promulgate a revised standard by August 2010.
- ⁷ Final 1-hour NO₂ NAAQS published in the Federal Register on 2/9/2010, effective 3/9/2010. Initial nonattainment area designations should occur in 2012 with conformity requirements effective in 2013. Project-level hot spot analysis requirements, while not yet required for conformity purposes, are expected.
- ⁸ U.S. EPA finalized a 1-hour SO₂ standard of 75 ppb in June 2010.
- ⁹ State standards are "not to exceed" unless stated otherwise. Federal standards are "not to exceed more than once a year" or as noted above.

µg/m³ = micrograms per cubic meter

CARB = California Air Resources Board

EPA = United States Environmental Protection Agency

mg/m³ = milligrams per cubic meter

ppm = parts per million

ppb = parts per billion

Source: www.arb.ca.gov/research/aaqs/aaqs2.pdf, 9/8/2010; California Air Resources Board, *Area Designations*, accessed May 2010.

Table 2.13-2 Local Air Quality Levels

Pollutant	Primary Standard		Year	Maximum Concentration ¹	Number of Days State/Federal Standard Exceeded
	California	Federal			
Carbon Monoxide (CO) ²	9.0 ppm for 8 hours	9.0 ppm for 8 hours	2006 2007 2008	1.64 ppm 2.16 1.10	0/0 0/0 0/0
Ozone (O ₃) ² (1-Hour)	0.09 ppm for 1 hour	N/A	2006 2007 2008	0.123 ppm 0.108 0.118	13/NA 5/NA 9/NA
Ozone (O ₃) ² (8-Hour)	0.07 ppm for 8 hours	0.075 ppm for 8 hours	2006 2007 2008	0.105 ppm 0.090 0.104	23/12 10/5 25/15
Nitrogen Dioxide (NO _x) ³	0.18 ppm for 1 hour	0.100 ppm	2006 2007 2008	0.101 ppm 0.074 0.081	0/NA 0/NA 0/NA
Sulfur Dioxide (SO ₂) ³	0.25 ppm for 1 hour	0.14 ppm for 24 hours or 0.03 ppm annual arithmetic mean	2006 2007 2008	0.005 ppm 0.004 0.003	N/A N/A N/A
Particulate Matter (PM ₁₀) ^{2, 4, 5}	50 µg/m ³ for 24 hours	150 µg/m ³ for 24 hours	2006 2007 2008	57.0 µg/m ³ 74.0 42.0	1/0 3/0 0/0
Fine Particulate Matter (PM _{2.5}) ^{2,5}	No Separate State Standard	35 µg/m ³ for 24 hours	2006 2007 2008	46.9 µg/m ³ 46.8 31.9	NM/1 NM/2 NM/0

Source: California Air Resources Board, *ADAM Air Quality Data Statistics*, <http://www.arb.ca.gov/adam/welcome.html>.

¹. Maximum concentration is measured over the same period as the California Standard.

². Measurements taken at the Mission Viejo Monitoring Station located at 26081 Via Pera, Mission Viejo, California.

³. Measurements taken at the Costa Mesa Monitoring Station located at 2850 Mesa Verde Drive, Costa Mesa, California.

⁴. PM₁₀ exceedances are based on State thresholds established prior to amendments adopted on June 20, 2002.

⁵. PM₁₀ and PM_{2.5} exceedances are derived from the number of samples exceeded, not days.

µg/m³ = micrograms per cubic meter

ADAM = Aerometric Data Analysis and Management System

NA = Not Applicable

NM = Not Measured

PM_{2.5} = particulate matter 2.5 microns in diameter or less

PM₁₀ = particulate matter 10 microns in diameter or less

ppm = parts per million

ambient air pollutant concentrations. The study area is located within the Cities of San Juan Capistrano, Dana Point, and San Clemente, which are located in SRA 21(Capistrano Valley). Although there are no monitoring stations within SRA 21, the Mission Viejo Monitoring Station is located in SRA 19 and the Costa Mesa Monitoring Station is located in SRA 18. The monitoring stations usually measure pollutant concentrations 10 feet (ft) above ground level; therefore, air quality is often referred to in terms of ground-level concentrations. The following pollutants are monitored within the vicinity of the project study area:

- CO
- O₃
- NO₂
- Sulfur oxide (SO_x) (or SO₂)
- PM₁₀
- PM_{2.5}
- Total Suspended Particulates and Visibility
- Volatile Organic Compounds (VOCs) (or Reactive Organic Gases [ROG])
- Pb

2.13.2.5 Diesel Particulate Matter

Diesel particulate matter (DPM) is part of a complex mixture that makes up diesel exhaust. Diesel exhaust is commonly found throughout the environment and is estimated by the EPA's National Scale Assessment to contribute to human health risk. Diesel exhaust is composed of two phases, either gas or particle, and both phases contribute to the risk. The gas phase is composed of many of the urban hazardous air pollutants such as acetaldehyde, acrolein, benzene, 1,3-butadiene, formaldehyde, and polycyclic aromatic hydrocarbons. The particle phase also has many different types of particles that can be classified by size or composition. The size of diesel particulates that are of greatest health concern are those that are in the categories of fine and ultrafine particles. The composition of these fine and ultrafine particles may be composed of elemental carbon with adsorbed compounds such as organic compounds, sulfate, nitrate, metals, and other trace elements. Diesel exhaust is emitted from a broad range of diesel engines: the on-road diesel engines of trucks, buses, and cars, and off-road diesel engines that include locomotives, marine vessels, and heavy-duty equipment.

2.13.3 Environmental Consequences

2.13.3.1 **Regional Conformity**

The proposed project is in the SCAG financially constrained 2008 RTP, which was found to conform by the FHWA/ FTA on June 5, 2008. The project is also included in the SCAG financially constrained 2011 FTIP, which was also found to be conforming by the FHWA/FTA on December 14, 2010 (Project ID: ORA990929; Description: I-5 at Avenida Pico to Pacific Coast Highway – add 1 HOV lane each direction and Avenida Pico Interchange Improvement). The design concept and scope of the proposed project is consistent with the project description in the 2008 RTP, the 2011 FTIP, and the assumptions in SCAG’s regional emission analysis. Therefore, the project is in conformance with the SIP. The project will also comply with all SCAQMD fugitive dust control requirements.

2.13.3.2 **Project Level Conformity**

Because the proposed project is within an attainment/maintenance area for CO and a nonattainment area for federal PM_{2.5} and PM₁₀ standards, local hot-spot analyses for CO, PM_{2.5}, and PM₁₀ are required for conformity purposes. The results of these hot-spot analyses are provided in Section 3.14.3.4, Permanent Impacts.

In regards to the related interagency consultation required for this project, SCAG’s Transportation Conformity Working Group (TCWG) determined the project to not be a project of air quality concern (POAQC) at their February 23, 2010 meeting. See Chapter 3 for a copy of review results, as posted by TCWG.

The I-5 HOV Lane Extension Project Air Quality Conformity Report was sent to FHWA on July 21, 2011 for conformity determination. Approval was received on August 23, 2011.

2.13.3.3 **Temporary Impacts**

Build Alternative 4 with Design Option A (Preferred Alternative)

During construction, short-term degradation of air quality may occur due to the release of particulate emissions (airborne dust) generated by excavation, grading, hauling, and other activities related to construction. Emissions from construction equipment also are anticipated and would include CO, nitrogen oxides (NO_x), VOCs, directly-emitted particulate matter (PM₁₀ and PM_{2.5}), and toxic air contaminants such as diesel exhaust particulate matter. O₃ is a regional pollutant that is derived from NO_x and VOCs in the presence of sunlight and heat.

Site preparation and roadway construction typically involves clearing, cut-and-fill activities, grading, removing or improving existing roadways, building bridges, and paving roadway surfaces. Construction-related effects on air quality from most highway projects would be greatest during the site preparation phase because most engine emissions are associated with the excavation, handling, and transport of soils to and from the site. These activities could temporarily generate enough PM₁₀, PM_{2.5}, and small amounts of CO, SO₂, NO_x, and VOCs to be of concern. Sources of fugitive dust would include disturbed soils at the construction site and trucks carrying uncovered loads of soils. Unless properly controlled, vehicles leaving the site could deposit mud on local streets, which could be an additional source of airborne dust after it dries. PM₁₀ emissions would vary from day to day, depending on the nature and magnitude of construction activity and local weather conditions. PM₁₀ emissions would depend on soil moisture, silt content of soil, wind speed, and the amount of equipment operating. Larger dust particles would settle near the source, while fine particles would be dispersed over greater distances from the construction site.

Construction activities for large development projects are estimated by the U.S. EPA to add 1.09 tonne (1.2 tons) of fugitive dust per acre of soil disturbed per month of activity. If water or other soil stabilizers are used to control dust, the emissions can be reduced by up to 50 percent. The Caltrans Standard Specifications (Section 14-9.02) pertaining to dust minimization requirements requires use of water or dust palliative compounds and will reduce potential fugitive dust emissions during construction.

In addition to dust-related PM₁₀ emissions, heavy-duty trucks and construction equipment powered by gasoline and diesel engines would generate CO, SO₂, NO_x, VOCs and some soot particulate (PM₁₀ and PM_{2.5}) in exhaust emissions. If construction activities were to increase traffic congestion in the area, CO and other emissions from traffic would increase slightly while those vehicles are delayed. These emissions would be temporary and limited to the immediate area surrounding the construction site.

SO₂ is generated by oxidation during combustion of organic sulfur compounds contained in diesel fuel. Off-road diesel fuel meeting federal standards can contain up to 300 parts per million (ppm) or more of sulfur, whereas on-road diesel is restricted to less than 15 ppm of sulfur. However, under California law and ARB regulations, off-road diesel fuel used in California must meet the same sulfur and other standards as on-road diesel fuel (not more than 15 ppm), so SO₂-related issues due to diesel exhaust will be minimal. Some phases of construction, particularly asphalt paving, would result in short-term

odors in the immediate area of each paving site(s). Such odors would be quickly dispersed below detectable thresholds as distance from the site(s) increases.

Alternative 4 would remove the existing I-5 paved shoulders and construct new pavement to the outside of the northbound and southbound lanes to accommodate an HOV lane. Additionally, Alternative 4 would improve the Avenida Pico interchange. Short-term impacts to air quality would occur during pavement removal and construction activities. Additional sources of construction-related emissions include:

- Exhaust emissions and potential odors from construction equipment used on the construction site, as well as the vehicles used to transport materials to and from the site
- Exhaust emissions from the motor vehicles of the construction crew

Construction of the proposed project is anticipated to commence in 2015 and be completed by 2019. However, no temporary road or intersection closures during construction are anticipated to last longer than two years. As a result, no hot-spot analysis or short-term air quality effects associated with temporary road or intersection closures are necessary. If any temporary road or intersection closures during construction last longer than two years, a hot-spot analysis would be required. As a result, project construction would not last more than five years and is considered temporary. Stationary or mobile-powered on-site construction equipment would include trucks, tractors, signal boards, excavators, backhoes, concrete saws, crushing and/or processing equipment, graders, trenchers, pavers, and other paving equipment.

In order to further minimize construction-related emissions, all construction vehicles and construction equipment would be required to be equipped with State-mandated emission control devices pursuant to State emission regulations and standard construction practices.

Short-term construction particulate matter emissions would be further reduced through the implementation of dust suppression measures outlined in SCAQMD Rules 402 and 403. Caltrans Standard Specifications for Construction (Section 10 and 18 [Dust Control] and Section 39-3.06 [Asphalt Concrete Plants]) would also be adhered to.

The proposed project would comply with any State, federal, and/or local rules and regulations developed as a result of implementing control and mitigation measures proposed as part of their respective SIPs. After construction of the proposed project is complete, all construction-related impacts would cease, thus resulting in a less than

significant impact. Therefore, project construction is not anticipated to violate State or federal air quality standards or contribute to the existing air quality violations in the SCAB.

Construction Diesel Particulate Matter

While there may possibly be diesel toxics emissions from the construction of a transportation project, the current scientific knowledge on diesel toxics is simply inadequate for conducting any meaningful quantitative assessment. The FHWA issued an *Interim Guidance on Air Toxic Analysis in National Environmental Policy Act (NEPA) Documents*. It points out that “. . . air toxics analysis is an emerging field, and current scientific techniques, tools, and data are not sufficient to accurately estimate human health impacts that would result from a transportation project in a way that would be useful to decision-makers.” The FHWA interim guidelines are used as a reference tool only.

The FHWA interim guidance suggests a number of mitigation measures for diesel toxics emissions from project construction. These measures can be summarized into three categories: (1) operational agreements, such as changing work shifts and reducing unnecessary engine idling; (2) technological adjustments and retrofits, such as particulate matter traps and oxidation catalysts; and (3) use of clean fuels, such as ultra-low sulfur diesel. However, it should be noted that with the current absence of any statewide or local regulation, the Department) does not have the legal authority to require construction contractors to undertake any of these measures. It may only be possible for the Department to request that some of these measures be employed on a case-by-case basis. However, when working with the contractors on this construction project, efforts would be undertaken to minimize diesel toxic emissions to the extent feasible. Therefore, the proposed project would have less than significant impacts regarding DPM.

2.13.3.4 Permanent Impacts

Build Alternative 4 with Design Option A (Preferred Alternative)

Carbon Monoxide

Alternative 4 with Design Option A would remove the existing I-5 paved shoulders to construct new pavement to the outside of the northbound and southbound lanes to accommodate an HOV lane. Additionally, Alternative 4 with Design Option A would improve the Avenida Pico interchange.

A qualitative hot-spot analysis is defined in 40 Code of Federal Regulations (CFR) 93.101 as an estimation of likely future localized pollutant concentrations resulting from

a new transportation project and a comparison of those concentrations to the relevant air quality standard. A hot-spot analysis assesses the air quality impacts on a scale smaller than an entire nonattainment or maintenance area, including, for example, congested roadway intersections and highways or transit terminals. Such an analysis is a means of demonstrating that a transportation project meets federal Clean Air Act (CAA) conformity requirements to support state and local air quality goals with respect to potential localized air quality impacts.

A CO hot-spot analysis was conducted per the 1997 Transportation Project-Level Carbon Monoxide Protocol (CO Protocol) developed by the Institute of Transportation Studies at the University of California, Davis. The analysis concluded that implementation of the proposed project would alleviate several peak-hour mainline and freeway ramp deficiencies and would reduce congestion. The proposed project involves the extension of HOV lanes that would reduce conflicts and enhance vehicular circulation. Additionally, the proposed project does not involve parking lots and therefore would not increase the number of vehicles operating in cold start mode. As a result, the proposed project has sufficiently addressed the potential CO impact, project impacts would be less than significant, and no further analysis or mitigation is needed.

Particulate Matter (PM₁₀ and PM_{2.5})

The EPA published a final rule on March 10, 2006 (effective as of April 5, 2006) and established conformity criteria and procedures for transportation projects to determine their impacts on ambient PM_{2.5} and PM₁₀ levels in nonattainment and maintenance areas. The March 10, 2006, final rule requires a qualitative PM_{2.5} and PM₁₀ hot-spot analysis to be completed for a project of air quality concern (POAQC). In order to implement the hot-spot analysis requirements of the March 10, 2006, final rule, the Transportation Conformity Guidance for Qualitative Hot-Spot Analyses in PM_{2.5} and PM₁₀ Nonattainment and Maintenance Areas (2006 Guidelines) were developed by the EPA and the FHWA. The proposed project is within a nonattainment area for federal PM_{2.5} and PM₁₀ standards; therefore, analyses are required for conformity purposes, but hot-spot analyses (either qualitative or quantitative) are not required because the project is not a POAQC.

The proposed project does not qualify as a POAQC pursuant to the March 10, 2006, final rule. The proposed project is not a new highway project that would have a significant number of, or increase in, diesel vehicles. The project would widen I-5 to extend the HOV lane in the northbound and southbound direction in order to achieve a higher person-carrying capacity and to improve air quality along this corridor. Implementation

of the proposed project would achieve the objectives to improve overall performance within the project limits and to relieve local street congestion within the interchange areas.

Additionally, the proposed project does not affect intersections that are at level of service (LOS) D, E, or F with a significant number of diesel vehicles. As noted above, implementation of the project would enhance traffic flow along this segment of I-5. The proposed project would not result in significant changes in traffic volume, vehicle mix, or other factors that would cause an increase in emissions compared to the No Build condition. Implementation of the proposed project would not change interchange LOS significantly between Build and No Build conditions. Lastly, implementation of the proposed project would alleviate several peak-hour mainline and freeway ramp deficiencies, thereby reducing congestion.

As part of the hot-spot conformity criteria, interagency consultation was required. The proposed project was submitted to stakeholders at a Transportation Conformity Working Group (TCWG) meeting on February 23, 2010, pursuant to the interagency consultation requirement of 40 CFR 93.105 (c)(1)(i). The Department, EPA, CARB, SCAQMD, and other interagency consultation participants reviewed additional information, including the detailed particulate matter analysis and CT-EMFAC model outputs. Upon review, the TCWG members concurred with the finding that the proposed project was not a POAQC due to the nominal differences in diesel truck volumes between the Build and No Build scenarios, the HOV lane extension would not add significant diesel truck capacity, and the auxiliary lanes and interchange modifications would not be a major truck traffic generator. Additionally, the proposed project represents the implementation of a TCM and would reduce congestion as well as merging and weaving conflicts. Therefore, the proposed project would not be considered a POAQC and would be considered exempt under 40 CFR 93.126, as it would not create a new, or worsen an existing, PM_{2.5} or PM₁₀ violation.

Mobile Source Air Toxics

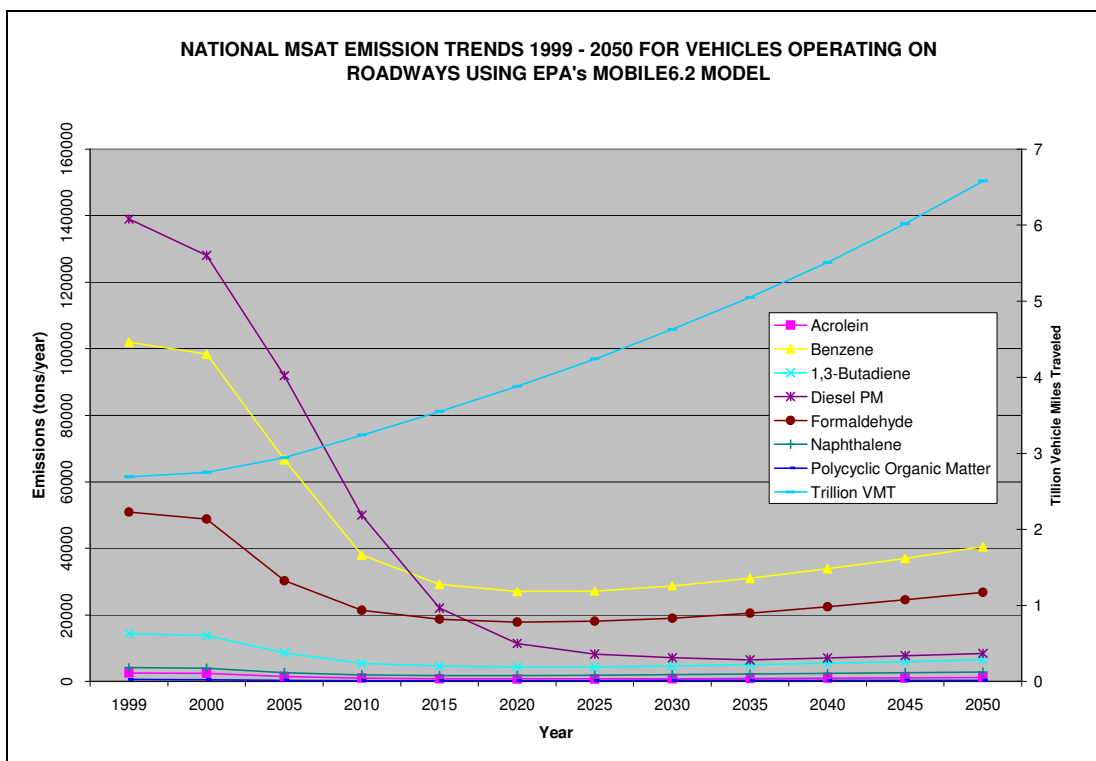
In addition to the criteria air pollutants for which there are NAAQS, the EPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners), and stationary sources (e.g., factories or refineries).

Controlling air toxic emissions became a national priority with the passage of the CAAAs, whereby Congress mandated that the EPA regulate 188 air toxics, also known as hazardous air pollutants. The EPA has assessed this expansive list in its latest rule on the Control of Hazardous Air Pollutants from Mobile Sources (Federal Register, Vol. 72, No. 37, page 8430, February 26, 2007) and identified a group of 93 compounds emitted from mobile sources that are listed in its Integrated Risk Information System (IRIS).¹ In addition, the EPA identified seven compounds with significant contributions from mobile sources that are among the national and regional-scale cancer risk drivers from its 1999 National Air Toxics Assessment (NATA)². These are acrolein, benzene, 1,3-butadiene, DPM plus diesel exhaust organic gases, formaldehyde, naphthalene, and polycyclic organic matter (POM). While the FHWA considers these the priority mobile source air toxics, the list is subject to change and may be adjusted in consideration of future EPA rules.

¹ <http://www.epa.gov/ncea/iris/index.html>.

² <http://www.epa.gov/ttn/atw/nata1999/>.

The 2007 EPA rule described above requires controls that will dramatically decrease Mobile Source Air Toxics (MSAT) emissions through cleaner fuels and cleaner engines. According to an FHWA analysis using the EPA's MOBILE6.2 model, even if vehicle activity (vehicle-miles traveled, VMT) increases by 145 percent as assumed, a combined reduction of 72 percent in the total annual emission rate for the priority MSAT is projected from 1999 to 2050, as shown in the figure below. The projected reduction in MSAT emissions would be slightly different in California due to the use of the EMFAC2007 emission model in place of the MOBILE6.2 model.



Air toxics analysis is a continuing area of research. While much work has been done to assess the overall health risk of air toxics, many questions remain unanswered. In particular, the tools and techniques for assessing project-specific health outcomes as a result of lifetime MSAT exposure remain limited. These limitations impede the ability to evaluate how the potential health risks posed by MSAT exposure should be factored into project-level decision-making within the context of NEPA.

In September 2009, the FHWA issued guidance¹ to advise FHWA division offices as to when and how to analyze MSATs in the NEPA process for highways. This document is an update to the guidance released in February 2006. The guidance is described as interim because MSAT science is still evolving. As the science progresses, FHWA will update the guidance. This analysis follows the FHWA guidance.

Information that is Unavailable or Incomplete

In the FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

The EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. It is the lead authority for administering the CAA and its amendments and has specific statutory obligations with respect to hazardous air pollutants and MSAT. The EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants, and maintains IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects."² Each report contains assessments of non-cancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of the FHWA's Interim Guidance Update on Mobile source Air Toxic Analysis in NEPA Documents. Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT

¹ <http://www.fhwa.dot.gov/environment/airtoxic/100109guidmem.htm>.

² EPA, <http://www.epa.gov/ncea/iris/index.html>.

compounds at current environmental concentrations¹ or in the future as vehicle emissions substantially decrease.²

The methodologies for forecasting health impacts include emissions modeling, dispersion modeling, exposure modeling, and then final determination of health impacts. Each step in the process builds on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified due to required lifetime (i.e., 70-year) exposure methodologies, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over that time frame, since such information is unavailable. The results produced by the EPA's MOBILE 6.2 model, the California EPA's Emfac2007 model, and the EPA's Draft Motor Vehicle Emission Simulator (MOVES) 2009 model in forecasting MSAT emissions are highly inconsistent. Indications from the development of the MOVES model are that MOBILE 6.2 significantly underestimates diesel PM emissions and significantly overestimates benzene emissions.

Regarding air dispersion modeling, an extensive evaluation of the EPA's guideline CAL3QHC model was conducted in an NCHRP study,³ which documents poor model performance at ten sites across the country; three where intensive monitoring was conducted plus an additional seven with less intensive monitoring. The study indicates a bias of the CAL3QHC model to overestimate concentrations near highly congested intersections and underestimate concentrations near uncongested intersections. The consequence of this is a tendency to overstate the air quality benefits of mitigating congestion at intersections. Such poor model performance is less difficult to manage for demonstrating compliance with NAAQS for relatively short time frames than it is for forecasting individual exposure over an entire lifetime, especially given that some information needed for estimating 70-year lifetime exposure is unavailable. It is particularly difficult to forecast MSAT exposure near roadways reliably, and to determine the portion of time that people are actually exposed at a specific location.

¹ HEI, <http://pubs.healtheffects.org/view.php?id=282>.

² HEI, <http://pubs.healtheffects.org/view.php?id=306>.

³ EPA, http://www.epa.gov/scram001/dispersion_alt.htm#hyroad.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSAT, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by the HEI.¹ As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds, and in particular for diesel PM. The EPA² and the HEI³ have not established a basis for quantitative risk assessment of diesel PM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by the EPA as provided by the CAA to determine whether more stringent controls are required in order to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires the EPA to determine a “safe” or “acceptable” level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld the EPA’s approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than safe or acceptable.

Because of these limitations in the methodologies for forecasting health impacts, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision-makers, who would need to weigh this information against project benefits, such as reducing traffic

¹ <http://pubs.healtheffects.org/view.php?id=282>

² <http://www.epa.gov/risk/basicinformation.htm#g>

³ <http://pubs.healtheffects.org/getfile.php?u=395>

congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Project Emissions

The proposed project would improve vehicular traffic and circulation and would not create a facility that is likely to meaningfully increase MSATs. However, the proposed project involves traffic volumes where average daily traffic (ADT) is currently greater than 150,000. As a result, a quantitative analysis for projects with higher potential MSAT effects (Tier 3) is provided below.

Table 2.13-3 presents the estimated MSAT emissions from traffic on I-5; refer to Appendix C. The data indicate that MSAT emissions would not vary significantly between [Alternative 4 with Design Option A](#) and [the](#) No Build condition. As depicted in Table 2.13-3, emissions would not change for most MSATs. However, butadiene and benzene would decrease slightly during Build conditions. This may be attributed to an improvement in vehicle speeds and an overall decrease in peak-hour VMT.

Table 2.13-3 Build and No Build Emissions on I-5

Mobile Source Air Toxins	No Build (pounds)	Alternative 4 (pounds)
Diesel Particulate Matter	34.47	34.47
Formaldehyde	21.75	21.75
Butadiene	4.90	4.88
Benzene	25.35	21.64
Acrolein	1.11	1.11
Acetaldehyde	7.01	7.01

Source: California Department of Transportation and University of California, Davis, *CT-EMFAC*, 2007. Based on traffic data provided by Austin-Foust Associates, Inc.
CT = California Department of Transportation (Department)
EMFAC = emission factors
I-5 = Interstate 5

CARB has found that DPM poses the greatest cancer risks among all identified air toxics. Diesel trucks contribute more than half of the total diesel combustion sources. However, CARB has adopted a Diesel Risk Reduction Plan (DRRP) with control measures that would reduce the overall DPM emissions by approximately 85 percent from 2000 to 2020. These reduction measures are not reflected in the CTEMFAC emission factors used in the analysis above. Therefore, future DPM emissions would be reduced beyond what is indicated in Table 2.13-3. In addition, total toxic risk from diesel exhaust may only be exposed for a much shorter duration. Further, DPM is only one of many environmental toxics, and those of other toxics and other pollutants

in various environmental media may overshadow its cancer risks. Thus, while diesel exhaust may pose potential cancer risks, most receptors' short-term exposure would cause only minimal harm, and these risks would also greatly diminish in the future operating years of the proposed project due to planned emission control regulations.

Naturally Occurring Asbestos/Structural Asbestos

Chrysotile and amphibole asbestos (such as tremolite) occur naturally in certain geologic settings in California, most commonly in association with ultramafic rocks and along associated faults. Asbestos is a known carcinogen, and inhalation of asbestos may result in the development of lung cancer or mesothelioma. The asbestos content of many manufactured products has been regulated in the U.S. for a number of years. For example, CARB has regulated the amount of asbestos in crushed serpentinite used in surfacing applications, such as for gravel on unpaved roads, since 1990. In 1998, new concerns were raised about possible health hazards from activities that disturb rocks and soil containing asbestos and may result in the generation of asbestos-laden dust. These concerns recently led CARB to revise its asbestos limit for crushed serpentinite and ultramafic rock in surfacing applications from five percent to less than 0.25 percent and to adopt a new rule requiring BMPs dust control measures for activities that disturb rock and soil containing naturally occurring asbestos.

The California Division of Mines and Geology (CDMG) Geological Map Index was searched for available geological maps that cover the project study area and surrounding areas. These geological maps indicate geological formations, which are overlaid on a topographic map. Some maps focus on specific issues (i.e., bedrock, sedimentary rocks), while others may identify artificial fills (including landfills). Geological maps can be effective in estimating permeability and other factors that influence the spread of contamination. According to CDMG maps, the project study area is generally in an urban land area underlain by a stratified sequence from the Quaternary Period and consists of alluvial floodplain deposits. Additionally, according to the CDMG document titled *A General Location Guide for Ultramafic Rocks in California – Areas More Likely to Contain Naturally Occurring Asbestos Report* (August 2000), the proposed project is not located in an area where naturally occurring asbestos (NOA) is likely to be present.

NOA in bedrock is typically associated with serpentine and peridotite deposits. Note that during demolition activities, the likelihood of encountering structural asbestos is low due to the nature of the demolished materials. The material would consist of concrete and metal piping. Therefore, the potential for NOA to be present within the project limits is considered to be low. Furthermore, prior to the commencement of construction, qualified

geologists would further examine the soils and makeup of the existing structure. Should the project geologist encounter asbestos during the analysis, proper steps shall be executed to handle the materials.

2.13.4 Avoidance, Minimization, and/or Mitigation Measures

No avoidance, minimization, and/or mitigation measures are required for operational air quality impacts, as the proposed project would not produce substantial operational air quality impacts. Most of the construction impacts to air quality are short-term in duration and, therefore, will not result in long-term adverse conditions. Implementation of the following measures, some of which may also be required for other purposes such as storm water pollution control will reduce any air quality impacts resulting from construction activities:

- AQ-1** To reduce fugitive dust emissions, the construction contractor shall adhere to the requirements of South Coast Air Quality Management District (SCAQMD) Rule 403 during construction. These Best Available Control Measures (BACMs) specified in SCAQMD's Rule 403 shall be incorporated into the project construction. BACMs shall include, but not be limited to, the following:
- a) All construction site areas shall be watered at least twice daily.
 - b) All trucks hauling soils, sand, gravel, and other loose materials shall be covered or required to maintain at least two ft of freeboard space.
 - c) All paved access roads, parking areas, and staging areas at the construction site shall be swept at least twice daily.
 - d) A nontoxic soil stabilizer or hydroseed shall be applied to parts of the construction site that are inactive for 10 or more days.
 - e) Exposed dirt or sand stockpiles shall be enclosed, covered, or watered twice daily.
 - f) Vehicle speeds shall be limited to 15 miles per hour in active construction areas.
 - g) Construction equipment shall be scheduled to maximize use rates and minimize idling times.
 - h) California Air Resources Board certified gasoline and diesel fuels shall be used in the construction equipment.
- AQ-2** During clearing, grading, earth-moving, or excavation operations, excessive fugitive dust emissions shall be controlled by regular watering

or other dust preventive measures using the following procedures, as specified in SCAQMD's Rule 403.

- All material excavated or graded shall be sufficiently watered to prevent excessive amounts of dust. Watering shall occur at least twice daily with complete coverage, preferably in the late morning and after work is done for the day.
- All material transported on site or off site shall be either sufficiently watered or securely covered to prevent excessive amounts of dust.
- The area disturbed by clearing, grading, earth moving, or excavation operations shall be minimized so as to prevent excessive amounts of dust.
- Visible dust beyond the property line emanating from the project shall be prevented to the maximum extent feasible.
- These control techniques shall be indicated in project specifications.

- AQ-3** Project grading plans shall show the duration of construction. Ozone precursor emissions from construction equipment vehicles shall be controlled by maintaining equipment engines in good condition and in proper tune per manufacturer's specifications.
- AQ-4** All trucks that are to haul excavated or graded material on site shall comply with State Vehicle Code Section 23114, with special attention to Sections 23114(b)(F), (e)(2) and (e)(4), as amended, regarding the prevention of such material spilling onto public streets and roads.
- AQ-5** The contractor shall adhere to California Department of Transportation (Caltrans) Standard Specifications for Construction (Sections 10 and 18 [Dust Control] and Section 39-3.06 [Asphalt Concrete Plant Emissions]).
- AQ-6** Should the project geologist determine that asbestos-containing materials (ACMs) are present at the project study area during final inspection prior to construction, the appropriate methods shall be implemented to remove ACMs.